

Designing 3D Virtual Simulations in Nursing Education: The Rest of the Story

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Disclosures

- Dr. Tona Leiker – No Disclosures
- Dr. Karen Whitham – No Disclosures

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Dr. Elaine Foster, Associate Dean and Professor, Graduate Nursing Programs

Center for Innovation in Teaching and Learning
Interprofessional Team – American Sentinel University

Learning Objectives

The learner will be able to describe use of virtual simulations in undergraduate and graduate nursing education.

The learner will be able to describe student and program learning outcomes achieved with use of virtual simulations in undergraduate and graduate nursing education.

Quick Facts

- **American Sentinel University, Aurora, CO**
- **Center for Innovation in Teaching and Learning (CITL)**
- **Collaboration between:** Multiple Nurse Educators, Academic Administrators, Instructional Designers, 3D World Professionals, and University Assessment Personnel

The Technology

- **3D World Platform:** Unity 3D
- **Data Capture:** Jibe
- **Interactive Communication:** ChatScript (a flexible open source chatbot engine)
- **Interactive Players:** Maximo (a flexible source for non-player characters)
- **GUI:** Programmed Internally
- **Learning Management System:** Moodle
- **Access:** Single-sign-on Capabilities

CITL Workgroup Meetings

Weekly CITL Technical Review	Monthly CITL Pedagogy Review	Quarterly CITL Committee Meeting	Nursing CITL Workgroup Meetings
Occurred every Thursday	Occurred the first Thursday of each month	Occurred once per quarter	Occurred once a month on Tuesdays
Technical Team: Bugs, building, language, design	Curricular focus - learning outcomes driven	Includes executive team and administrative leadership – oversight group	Nursing workgroup – Curricular alignment with QSEN; project updates; volunteers; DNP projects, demos, etc.

NURSING PROGRAMS TECHNOLOGY ENHANCED LEARNING CURRICULUM MAPPING

Course	AACN Essentials*	Activity	QSEN**	Assigned Personnel	Requisite Technology	Progress
BSN432PE – Community Health Nursing	Integrate theories and concepts from liberal education into nursing practice. (EI-1.)	Write a letter to head of the health department to improve the water quality in the city. (C1.M2)	Appreciate importance of intra- and inter-professional collaboration. (TC-A)		Sentinel City - City Hall	Not started. Approved to develop. In development. Testing. Complete.
N522PE		Complete a comprehensive health assessment following the final course assignment.			Shadow Health – Tina – Graduate Version	Not started. Approved to develop. In development. Testing. Complete.

BSN432PE Community Health Nursing

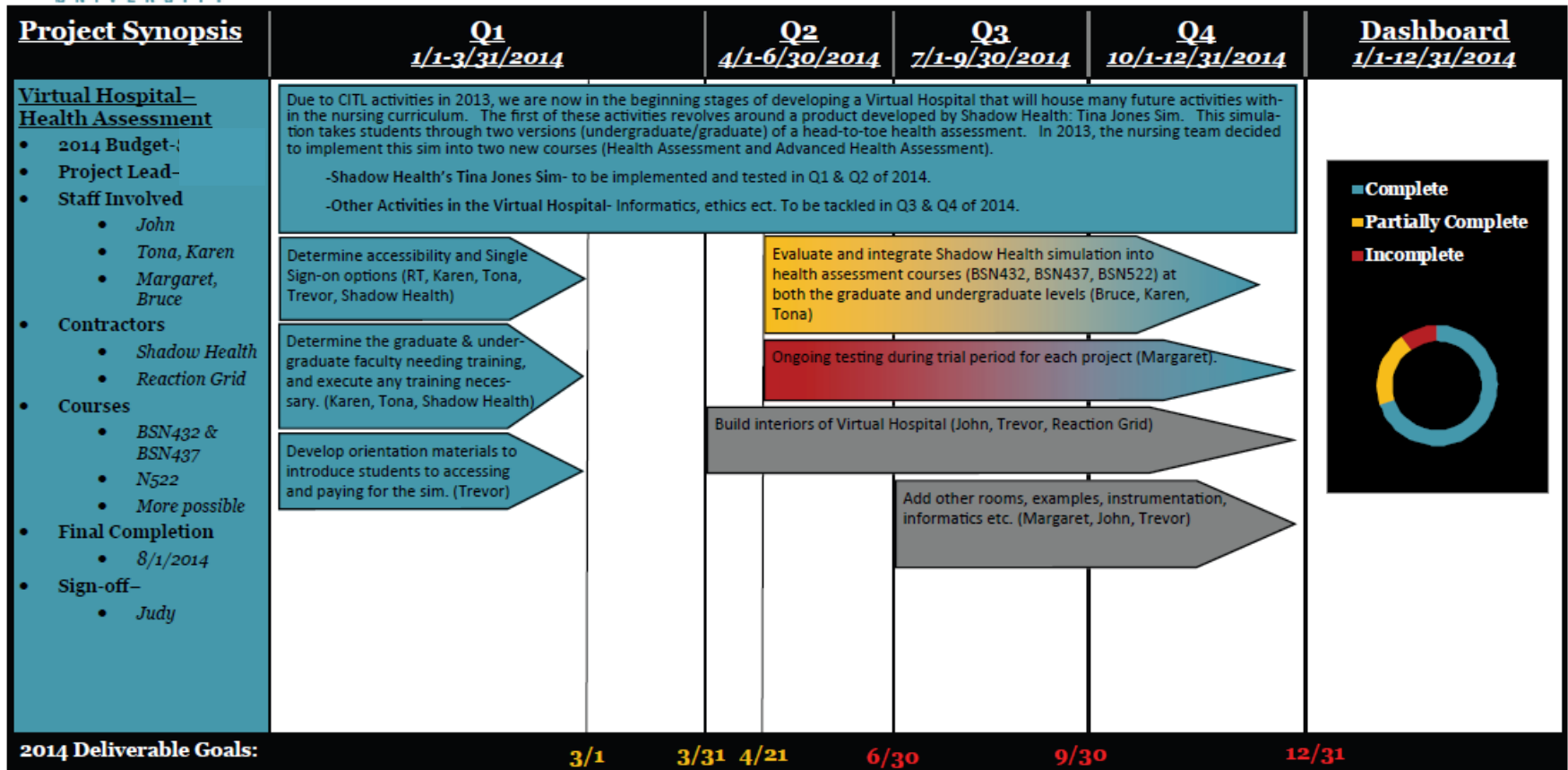
<p>MODULE 2 Planning for Community Change/ Community Assessment</p>	<p>By the completion of this module, you will be able to:</p> <ul style="list-style-type: none"> • Begin to integrate findings from the Windshield Survey of a simulated community: Sentinel City to your target population • Identify a community assessment model that can be applied to your target population • Develop a community health nursing diagnosis for a vulnerable population affiliated with your practice learning site that can be applied to the same population in Sentinel City. 	<p>Read Chapters 4, 8 & 10 in Harkness, G. A., & DeMarco, E. (2012). <i>Community and public health nursing: Evidence for practice</i>. Philadelphia: Lippincott Williams & Wilkins</p> <p>Download Sentinel City Demographic Database (file included in this module)</p> <p>Visit Community Health Nursing flashcards</p> <p>Read Community Assessment Models and Measures</p> <p>Visit 2009 Community Health Status Indicators: Select your state then county to find health information</p> <p>Visit the Office of Minority Health Web Page, "National Standards on Culturally and Linguistically Appropriate Services" (CLAS): Click data/statistics then Click Data by Health Topic</p> <p>Confirm an agreement with an appropriate community health practice learning site and a mentor who will serve as the key informant for your target population (your target population will be the population for whom the practice learning site provides services). The mentor should be an RN with at least a BSN degree. Other professional persons may serve as your mentor with prior approval from the course faculty. Contact course faculty prior to week 3 if you are having trouble finding an appropriate community health practice learning site or need help identifying an appropriate mentor.</p>	<p>Discussion 2 – Question 1: Compare and contrast geographic communities, communities of interest, and communities of solution. Provide a specific example of how a geographic community can move from a community of interest to a community of solution. Provide rationale and include at least 2 scholarly references.</p> <p>Discussion 2 – Question 2: Using demographic information from the 2013 Sentinel City demographic database, briefly describe the target population that is served by your practice learning site. Discuss at least 2 health status indicators applicable to your target population. Next describe the community assessment model (framework) appropriate for your target population. Include a rationale for selecting this model. What types of information on the CLAS website pertain to the population served by your practice learning site? Include at least 2 scholarly references – 1 reference should be from a peer-reviewed professional journal published within the past 7 years.</p>
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Health Assessment Dashboard



Center for Innovation in Teaching and Learning (CITL)

-2014 Project Roadmap



Our Work

Sentinel City™

Community Health Issues

Virtual Teaching Hospital

Shadow Health – Health Assessment

Change Management Projects

Nursing Presentation Hall

Maura™

Professor IQ™

2015 City Metro Area Map



Rural Sentinel City



Urban Sentinel City



Virtual Campus



Nursing Museum



Sentinel General
Virtual Hospital



Sentinel City Suburbs



Urban Sentinel City™

Sentinel City™- home to several simulated activities including a “*Community Assessment*”.



Community Assessment: The Windshield Survey





BODEGA SUPERMARKET & DELI

COLD BEER & TORRAD COFFEE TEA & COKE HOT & COLD SANDWICHES FRESH MEATS FRUITS & VEG CANNED TOMATOES FRESH BREAD THE BAKERY BREADS PASTRY BUTTERED BREAD

NEWS



Saint Joseph Rd.

Virtual Hospital and Presentation Hall



Health Assessment: Digital Clinical Experience (DCE)

Undergraduate & graduate versions were customized for use within the hospital

- Completed QA review
- A brief introduction video was developed
- Placed within the classroom
- Faculty orientation
- Faculty trial of course
- Courses implemented

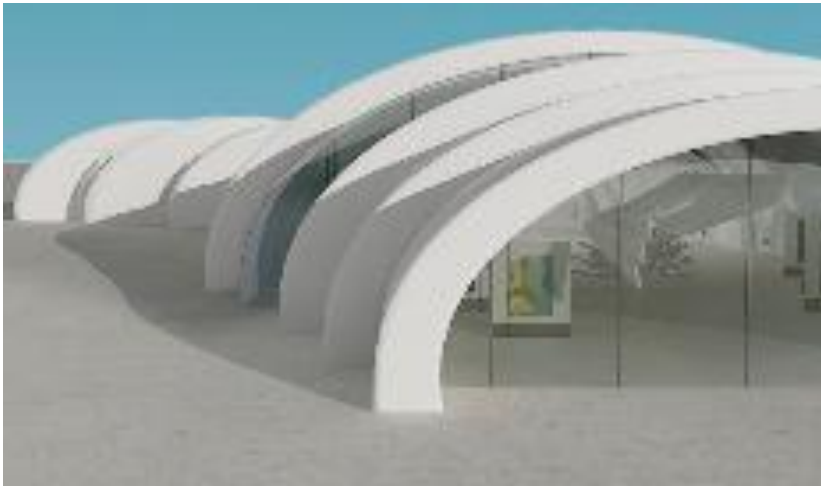


American Sentinel University Presentation Hall

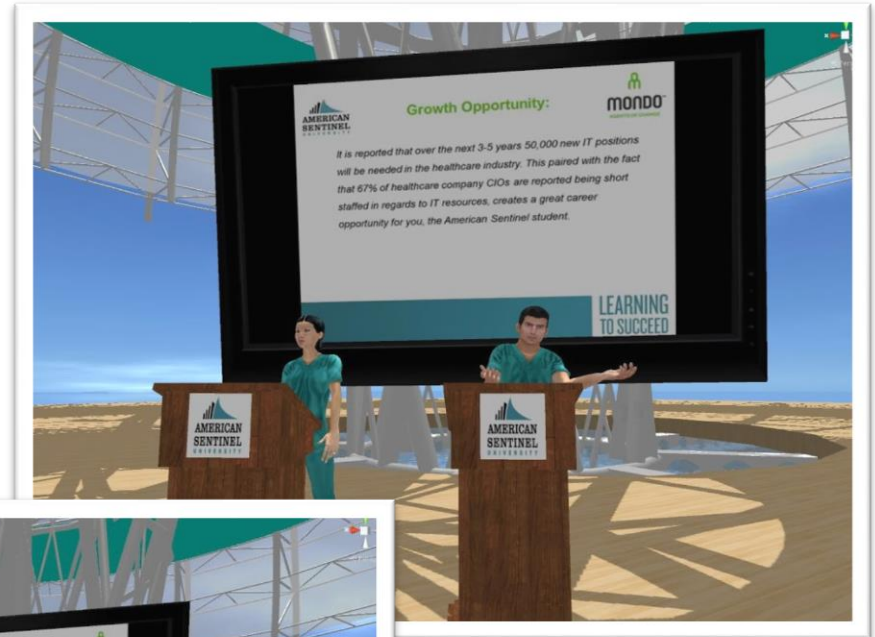


Contains exhibits aligned to courses at American Sentinel University. A large presentation space is situated nearby.

Nursing Presentation Hall: Concept Drawings of External and Internal Design



Feature Presentation Space



Virtual Teaching Hospital

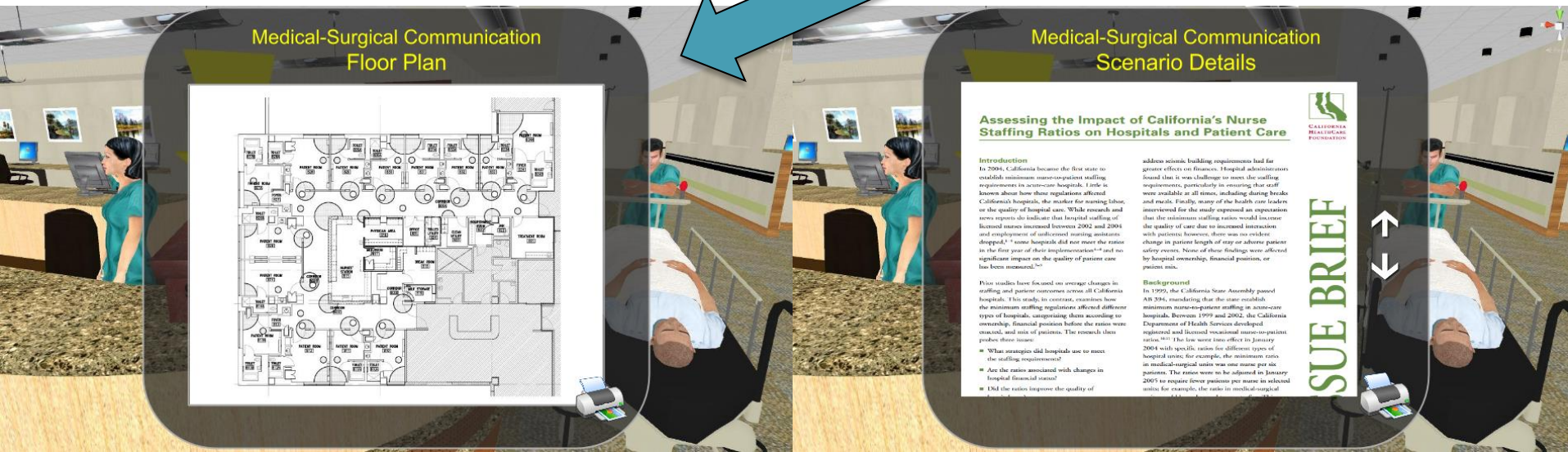
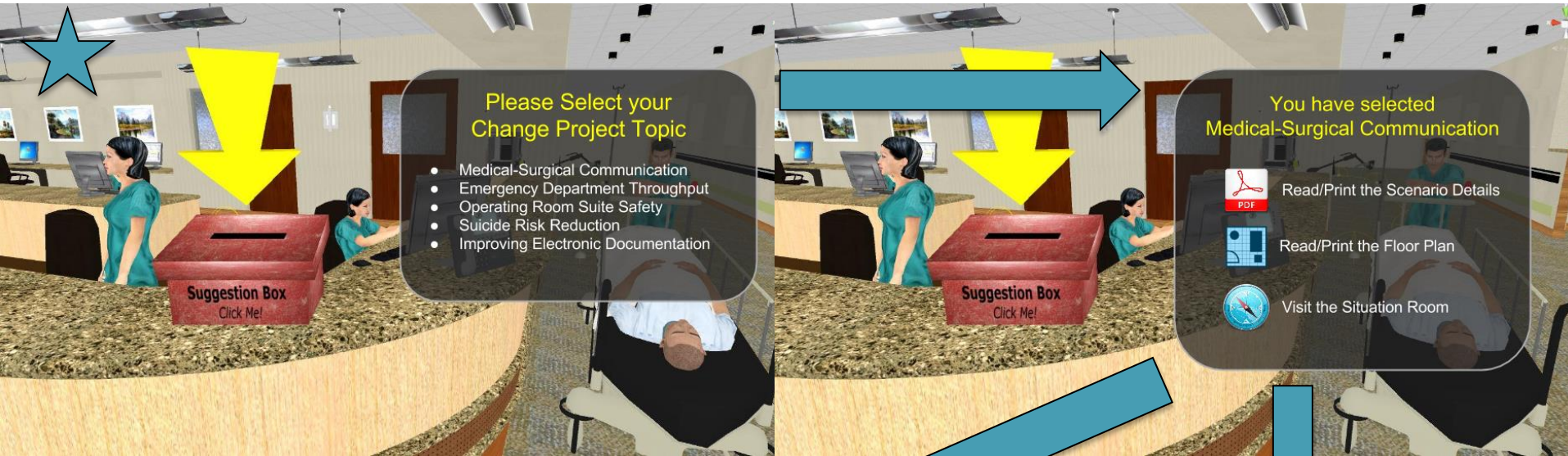


Virtual Teaching Hospital

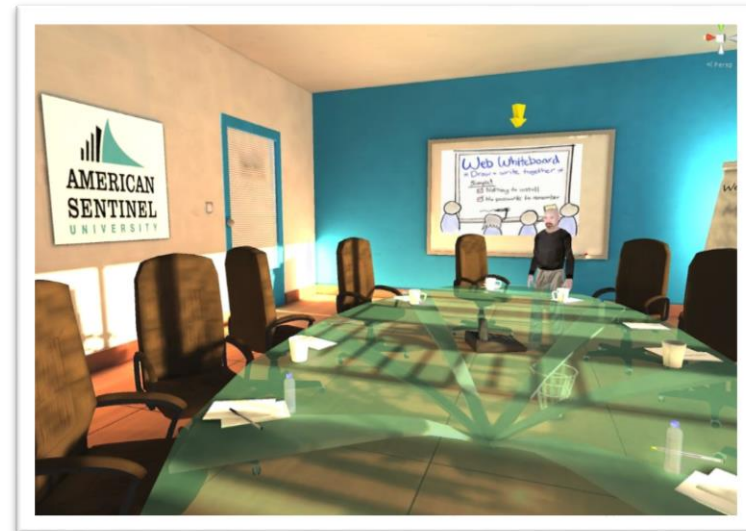
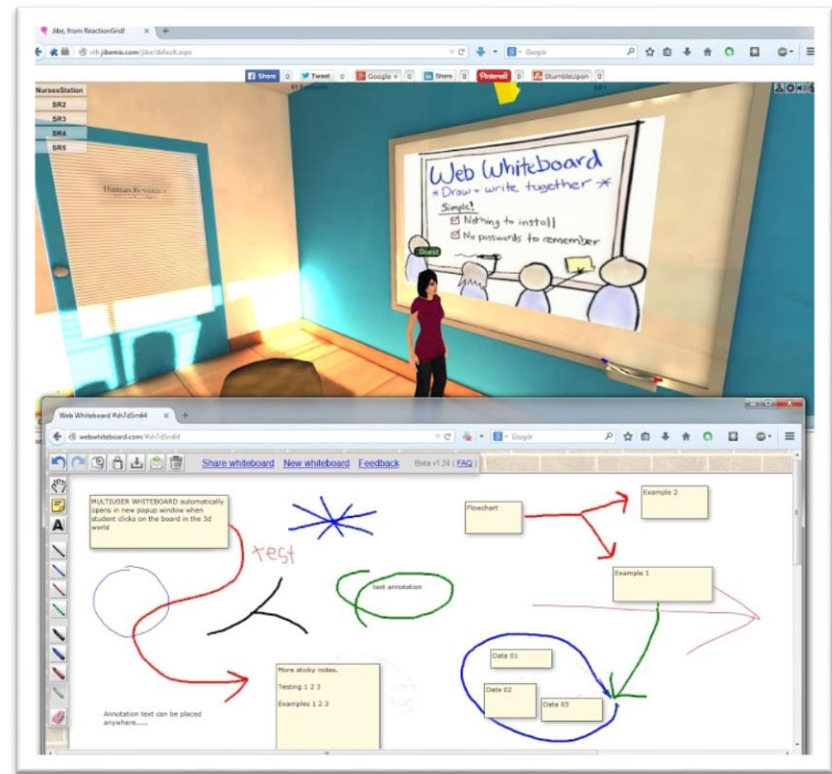
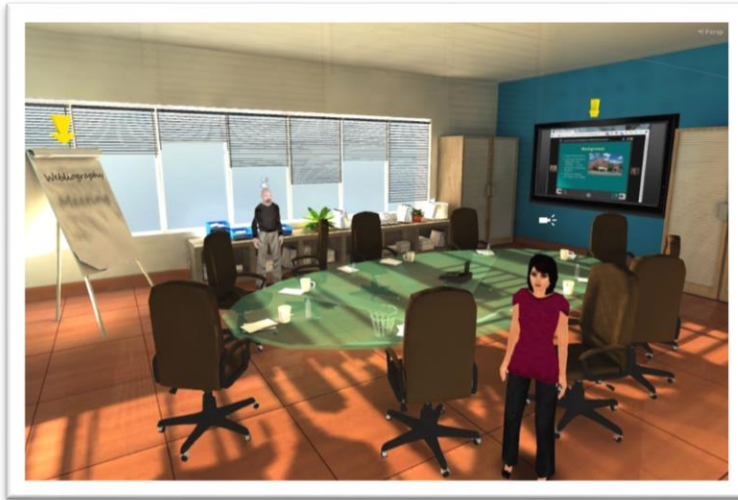
Change Project

- 5 Scenarios for RN to BSN students to choose one
- Complete by reviewing the VoiceThread “Situation”
- Study Floor Plan (of concerns)
- Webliography of resources
- Designing a Storyboard (Caremap; StickyNotes; Whiteboard)
- In a Scenario Room
- May discuss with a seasoned informant (BSN prepared nurse)
- Submit final report

Selecting a Change Project...



Explore the Situation Room



Maura™: My *Anytime* University Resource Aide



MAURA 2014



My Anytime University Resource Aide

MAURA is an artificially intelligent bot that offers after-hours advising to students looking for answers to frequently asked questions. MAURA lives on the university's student registration site, classroom site and within our 3D virtual scenes. American Sentinel University is currently developing an editor that would allow other educators, with no programming background, to develop their very own artificially intelligent bot.



500+
Unique Responses

Accommodates for 6800+ Reductions

Reductions- a variety of ways one can ask a given question.



Peak Access:
After 6PM Mountain
8PM Eastern



400 Student Inquires
Per Week Average



82% Average Success
Rate in Answering
Student Questions

Student Inquiry Categories

University Resources
APA Formatting
Assignments
Course Access
Drop/Withdraw

Fees
Financial Aid
Grades

Instructor Communication
Login
Tuition
Registrar's Office

Registration
Success Advisor
Technical Assistance

"Maura" information can be found at citl.americansentinel.edu

Professor IQ™

- Assists students in courses with knowledge about the specific discipline
- Takes on the persona of the profession



[Turn Audio On](#) [Turn Audio Off](#) Audio is on

[Module 1](#) [Module 2](#) [Module 3](#) [Module 4](#)
[Module 5](#) [Module 6](#) [Module 7](#) [Module 8](#)
[Go to Beginning](#) [APA](#) [Reset](#)

Welcome to BSN405!

Simply type your BSN405 question or select a specific Module with the buttons above.

[Ask ProfessorIQ™](#)

Professor IQ™

Answers most common questions in four courses in BSN program

Adding more courses across Nursing Programs

Most common questions are taken from previous course offerings with real faculty responses

Designed to answer by module specific content by course each week

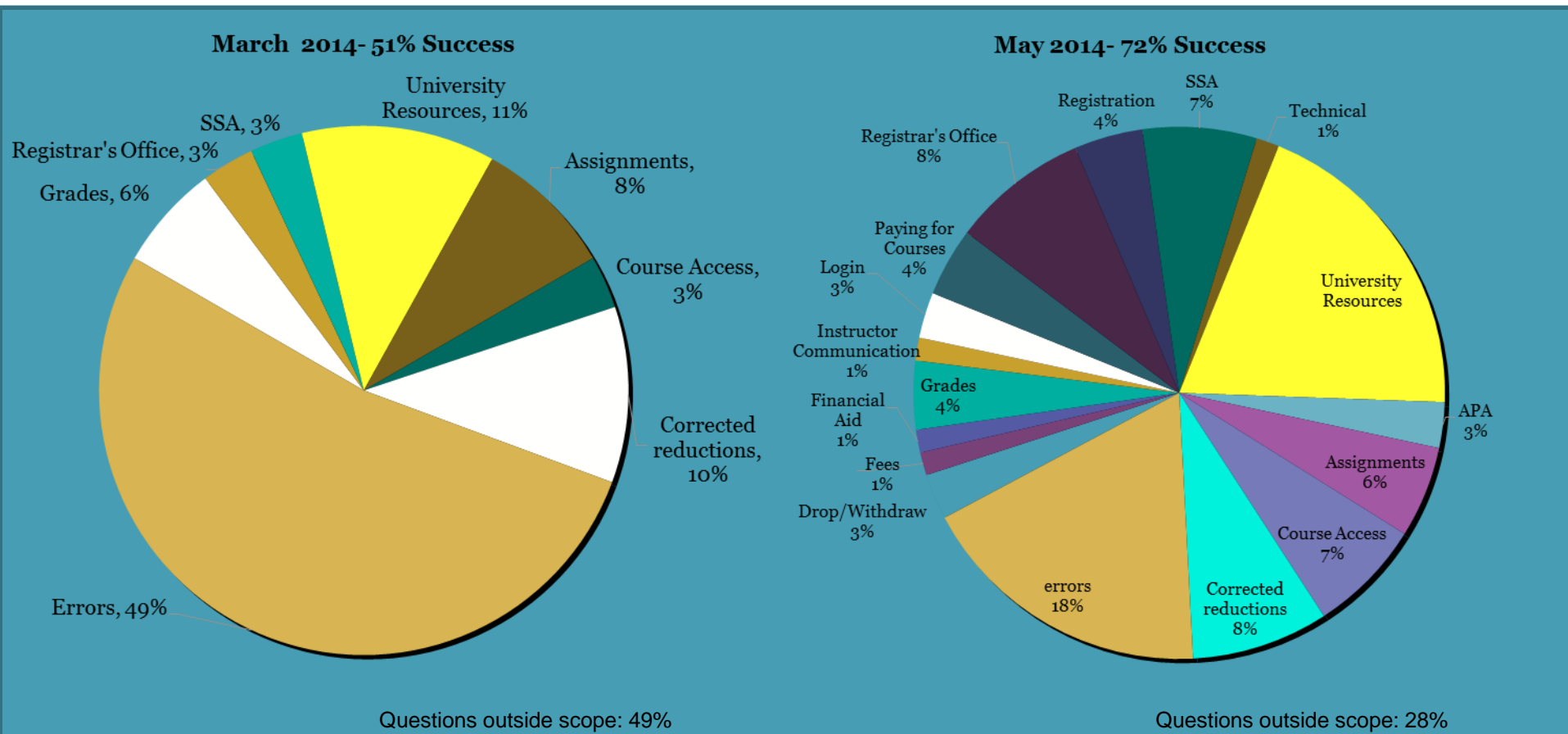
Available 24/7 within the courses

ChatScript Analytics

MAURA™ has been in full use since March 2014.

Embedded in student and classroom site.

All questions reviewed by student success advisors.



Course Formative and Summative Assessments

Formative Assessment

BSN432PE

Summative Assessment

Virtual Simulation Courses

BSN432PE Community Health

BSN437PE Health Assessment

BSN421PE Leadership and Management

N522PE Advanced Physical Assessment

References

- Bateman, J., Allen, M., Samani, D., Kidd, J., & Davies, D. (2013). Virtual patient design: Exploring what works and why. A grounded theory study. *Medical Education*, 47(6), 595-606. doi:10.1111/medu.12151
- Benner, P., Sutphen, M., Leonard, V. & Day, L. (2010). *Educating nurses: A Call for radical transformation*. San Francisco, CA: Jossey-Bass.
- Cameron, B. (2003). Effectiveness of simulation in a hybrid and online networking course. *The Quarterly Review of Distance Education*, 4(1), 51-55. doi:10.1145/792548.611947
- Campbell, S. H. (2012). Role-playing: An underutilized tool for teaching student to think, act, and reflect like a nurse. *Clinical Simulation in Nursing*, 8(7), 261-263.
- Foronda, C., Godsall, L., & Trybulski, J. Virtual clinical simulation: The state of the science. (2015). *Clinical Simulation in Nursing*. doi: 10.1016/j.ecns.2012.05.005
- Guhde, J. (2010). Using online exercise and patient simulation to improve students' clinical decision-making. *Teaching with Technology*, 31(6), 387-389.
- Hayden, J. K., Smiley, R. A., Alexander, M., Kardong-Edgren, S., & Jeffries, P.R. (2014). The national simulation study: A longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation*, 5(2S).
- Jeffries, P. R. (2012). *Simulation in nursing education: From conceptualization to evaluation*. Washington, DC: National League for Nursing.
- Kaddoura, M. A. (2010). New graduate nurses' perceptions of the effects of clinical simulation on their critical thinking, learning, and confidence. *The Journal of Continuing Education in Nursing*, 41(11), 506-516.
- Kleinheksel, A. J., (2015). Transformative learning through virtual patient simulations: Predicting critical student reflections. *Clinical Simulation in Nursing*. doi:10.1016/j.ecns.2014.02.001
- QSEN. (2012). Quality and safety education for Nurses (QSEN): Pre-licensure and graduate knowledge, skills, and attitudes. Retrieved from <http://qsen.org/>
- Shim, B., Douglas, B., & Jenkins, L. (2005). Developing practical criteria for evaluating online patient simulations: A preliminary study. *Medical Teacher*, 27(2), 175-177. doi:10.1080/01421590400019450
- Sittner, B. J. (2015) Engaging students in simulation through virtual immersion. *Clinical Simulation in Nursing*. doi: 10.1016/j.ecns.2009.04.072
- Tilley, J., & Kaihoi, B. (2011). Virtual worlds: A new universe for education, patient care, and more. *PT In Motion*, 3(6), 16-22.

Questions?

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